

1 **What Is Claimed Is:**

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3 1. A pneumatic fastening tool comprising:

4 a piston reciprocally disposed in a cylinder;

5 a hammer mounted on said piston for driving engagement with a
6 fastener device; and

7 a poppet valve disposed at one end of the cylinder and operable
8 to direct high pressure air to cause selected movement of said piston in
9 the cylinder;

10 said tool comprising means defining a vent valve casing and a
11 inner surface surrounding said vent valve casing;

12 said poppet valve comprising a poppet valve member disposed
13 between said surface and said cylinder and movable into and out of
14 engagement with said one end of said cylinder, said poppet valve
15 member including a proximal end surface in confronting relation with
16 said inner surface, a vent valve member in the form of a post that is
17 reciprocally movable in said vent valve casing; and a buffer means
18 made of a material more resilient than said inner surface fixed to said
19 proximal end surface.

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21 2. The tool in accordance with claim 1 wherein said buffer means is
22 molded to the poppet valve member.

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24 3. The tool in accordance with claim 1 wherein said buffer means is
25 fixed to the poppet valve member by fastener members.

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27 4. The tool in accordance with claim 1 wherein said buffer means
28 comprises an annular ring fixed to the poppet valve member by molding
29 of the ring onto the poppet valve member.

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1 5. The tool in accordance with claim 1 wherein said buffer means
2 comprises an annular ring fixed to the poppet valve member by fastener
3 members.

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5 6. The tool in accordance with claim 1 wherein said inner surface is
6 made of metal and said buffer means comprises a polymer.

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8 7. The tool in accordance with claim 6 wherein the metal comprises
9 steel and the more resilient material comprises polyethylene.

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11 8. The tool in accordance with claim 1 wherein said buffer means
12 comprises a polymer with a hardness of about 95 durometer measured
13 on the A scale..

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15 9. The tool in accordance with claim 4 wherein said annular ring is
16 provided with at least one groove on an exposed surface thereof.

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18 10. The tool in accordance with claim 5 wherein said annular ring is
19 provided with at least one groove on an exposed surface thereof.

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21 11. The tool in accordance with claim 1 wherein said poppet valve
22 member has a distal end surface having an elastomeric element fixed
23 thereto.

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25 12. The tool in accordance with claim 11 wherein the elastomeric
26 element is molded onto the poppet valve member second end surface.

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28 13. The tool in accordance with claim 11 wherein the elastomeric
29 element is fixed to the poppet valve member second end surface by
30 fasteners.

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14. The tool in accordance with claim 11 wherein the elastomeric element comprises polyurethane.

15. The tool in accordance with claim 2 wherein the poppet valve member includes a center post having a free end, and said poppet valve casing end surface is provided with a resilient buffer member fixed thereto such that the center post free end is engageable with the poppet valve casing resilient buffer member, and wherein said element is adapted to engage portions of said poppet valve casing end surface substantially simultaneously with the center post free end engagement with the resilient buffer member.

16. The tool in accordance with claim 15 wherein the element extends further proximally than the center post free end.

17. The tool in accordance with claim 15 wherein the center post extends further proximally than said element..

18. A poppet valve member adapted for reciprocal movement relative to a cylinder and a vent valve casing, said valve member comprising:
distal and proximal ends;
first and second annular grooves formed in said distal and proximal ends respectively; and
a resilient sealing ring secured in said first groove and a buffer ring of greater durometer than said first ring secured in said second groove.

1 19. A poppet valve member in accordance with claim 18 wherein
2 said valve member is made of aluminum, magnesium or Delrin® and
3 said rings are made of a polymeric material.

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5 20. A poppet valve member in accordance with claim 18 wherein
6 said rings are secured in said grooves by molding them in said grooves
7 or by means of fasteners.

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9 21. A poppet valve member in accordance with claim 18 further
10 including first and second peripheral grooves located adjacent said
11 distal and proximal ends for accommodating O-rings for forming a
12 sliding seal with a surrounding poppet valve casing

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14 22. A poppet valve member in accordance with claim 18 having an
15 end wall at said distal end, a center post formed integral with said end
16 wall and extending axially toward said distal end, said post having an
17 internal passageway that extends for its full length, and said buffer ring
18 extending proximally further than said center post.

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20 23. A poppet valve member in accordance with claim 18 including an
21 integral center post extending axially away from said distal end and
22 projecting outwardly from said proximal end, said poppet valve member
23 having an internal passageway that extends within and for the full
24 length of said center post, and said post extending proximally further
25 than said buffer ring.

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